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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,060	08/27/2003	David C. White	BW-DKT03085	4962

32175 7590 10/13/2004

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EXAMINER	
RIDDLE, KYLE M	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/649,060	WHITE ET AL.	
	Examiner	Art Unit	
	Kyle M. Riddle	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Drawings

1. The drawings were received on 19 July 2004. These drawings are acceptable.

Claim Objections

2. Claims are objected to because of the following informalities:

- Claim 5, page 6 of the amendment, line 3 of the claim, "for for forming" should read --for forming--;

- Claim 6, page 7 of the amendment, last line of the claim, "from" should read --form--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 3 and 7 depend from claims 1 and 6, respectively, in which both cite a rotor formed as part of the shaft. Applicant cites on page 15, lines 13-15, that the rotor and shaft can be a single member, the rotor formed as part of the shaft, indicating a single component. However, claims 3 and 7 cite different techniques for irreversibly connecting the rotor to the shaft delineating two separate components, which contradicts a rotor being formed as part of the shaft which indicates to one of ordinary skill in the art, and as indicated by the applicant as described above, that the rotor and shaft are one component only. Since it appears

that the dependent claims 3 and 7 have two components but include all the limitations of their independent claims where the two components are formed as one component, and the claims are distinctly clear in their interpretation as supported by the specification, the contradiction in their meaning making them indefinite.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 5, 6, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ken et al. (U.S. Patent 6,006,708).

Ken et al. disclose a valve timing control apparatus comprising:

- a VVT mechanism 11 with a cam shaft 12 which changes the rotational phase of the cam shaft with respect to the crankshaft (column 6, lines 33-44);

- the internal rotor 29 fixed to the distal end of the cam shaft 12 (column 6, lines 7-9) or the cam shaft 12 integrally formed with the internal rotor 29 (column 13, lines 21-24);

- the internal rotor 29 having a cylindrical portion 31 with four vanes 32 located in slots or grooves 34 (column 5, lines 33-37, lines 44-48).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-3, 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borraccia et al. (U.S. Patent 6,405,696) in view of Klaar (U.S. Patent 5,992,265) or Arnold et al. (U.S. Patent 4,922,785).

Borraccia et al. disclose a spline-type cam phaser comprising:

- an inner hub 130 and hub flange 132 with oversized bore 142 sized to receive in interference fit a boss 154 on the inner hub 130 for sealably mating with the end of camshaft 12 (column 5, lines 52-67);

- a bolt 76 threaded through the central openings in the camshaft, cover, hub, and hub flange to lock elements irreversibly in a fixed relation with no other radial fastening members (column 5, lines 39-41 and Figures 2, 5, and 6);

- the inner hub 130 preferably formed by machining and press-fitted with hub flange 132 (column 6, lines 9-17);

- external right hand helical splines 90 and internal left hand helical splines 92 for meshingly engaging the corresponding splines 28, 52 on the sprocket flange and hub assembly, respectively (column 7, lines 38-41);

- eliminating the need for a second load bearing surface reducing component parts and improving axial alignment (column 8, lines 35-41);

- a cover 66 with reduced size, mass and inertia (column 8, lines 54-63);

- a pressed inner groove ring 160 for supporting seal 162 into inner hub 130 permitting easy machining of hub splines 52 and reducing the minimum axial length of the phaser (column 8, lines 64-67 with column 9, lines 1-5).

Borraccia et al. fail to disclose a rotor formed as part of the shaft or irreversibly mounting the hub or rotor on a shaft without the use of a fastening member.

Klaar teaches a built-up camshaft 1 to fix a hub or sprocket mounting 6 made from a steel tube (column 3, lines 37-45) and having a shoulder 18 (or hub) formed integrally in one piece at the end of shaft body 11 and then working the unfinished surface of the cast body 20 to create the proper contours (column 3, lines 55-64).

Arnold et al. teach a tubular camshaft assembly of forged metal with irreversibly fixed cam elements 12 and journal elements 14 which can include gears, eccentrics or sprockets (column 2, lines 19-30), and mounting the end elements in their proper positions, forcibly loading the shaft ends, and expanding the shaft preferably by a ball 48 forced through the tube or shaft 11 in a process known as ballizing (column 4, lines 3-23).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Klaar or Arnold et al., in the phaser apparatus of Borraccia et al., since the use thereof would eliminate the need of bolt 76. Borraccia et al. suggest the irreversibly mounting of the hub 130 to the camshaft 12 by the interference fitting of boss 154 on the hub 130 sealably mating with camshaft 12 (column 5, lines 62-67). Borraccia et al. further suggest the primary purpose of the bolt 76 is to secure the cover 66, 168 (column 6, lines 22-25, lines 55-66, and column 8, lines 15-18, lines 49-63). Therefore, Borraccia et al. suggests that a fastening member (bolt) is not needed for the attachment of the hub 130 to the camshaft 12. Furthermore, applicant's invention includes holes in the camshaft (see Figures 3-5, 8, and 9) comparable to the size of the bolt 76, indicating the inclusion of such a bolt only minimally, if any, alters the reduced axial dimension as claimed. However, where a

product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi,* 218 USPQ 289 (Fed. Cir. 1983).

9. Claims 3 and 7 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Ken et al. in view of Klaar or Arnold et al.

Ken et al. disclose a valve timing control apparatus comprising a VVT mechanism with a cam shaft which changes the rotational phase of the cam shaft with respect to the crankshaft, the internal rotor fixed to the distal end of the cam shaft or the cam shaft integrally formed with the internal rotor, the internal rotor having a cylindrical portion with four vanes located in slots or grooves. Ken et al. fail to disclose irreversibly mounting the hub or rotor on a shaft without integrally forming the rotor to the shaft or the use of a fastening member.

Klaar teaches a built-up camshaft 1 to fix a hub or sprocket mounting 6 made from a steel tube (column 3, lines 37-45) and having a shoulder 18 (or hub) formed integrally in one piece at the end of shaft body 11 and then working the unfinished surface of the cast body 20 to create the proper contours (column 3, lines 55-64).

Arnold et al. teach a tubular camshaft assembly of forged metal with irreversibly fixed cam elements 12 and journal elements 14 which can include gears, eccentrics or sprockets (column 2, lines 19-30), and mounting the end elements in their proper positions, forcibly loading the shaft ends, and expanding the shaft preferably by a ball 48 forced through the tube or shaft 11 in a process known as ballizing (column 4, lines 3-23).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Klaar or Arnold et al., in the VVT apparatus of Ken et al., since the use thereof would eliminate the need of a fastening means. Ken et al. suggest the cam shaft 12 and internal rotor 29 being formed integrally omitting the need for fastening members (column 13, lines 21-24). Furthermore, applicant's invention includes holes in the camshaft (see Figures 3-5, 8, and 9) comparable to the size of normal fastening members, indicating the inclusion of such a bolt only minimally, if any, alters the reduced axial dimension as claimed. However, where a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi,* 218 USPQ 289 (Fed. Cir. 1983).

10. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being obvious over Ken et al.

Ken et al. disclose the VVT apparatus cited above, however, fail to disclose the rotor machined as part of the cam shaft.

Ken et al. suggest the cam shaft 12 and internal rotor 29 being formed integrally omitting the need for fastening members (column 13, lines 21-24). Various methods or techniques of integrally forming a rotor member to a shaft to include machining are well known to one of ordinary skill in the art, the choice of machining would have been obvious depending on manufacturing costs, tooling requirements, and complexity of the process. Moreover, there is nothing in the record which establishes that the application of machining the rotor to the shaft represents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Response to Arguments

11. Applicant's arguments with respect to claims 1, 5, and 6 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (703) 306-3409, and effective 22 November 2004 will be (571) 272-4864. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859 effective 22 November 2004.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kyle M. Riddle
Examiner
Art Unit 3748

kmr

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